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Use for Experimental Methods Improving Students 'Activities and Achievements in Class V Elementary School Learning Learning

Dwi Semi Sayekti
SDN Ringinanom1 Kecamatan Tempuran Kabupaten Magelang
dwisemisayekti@gmail.com

Abstract

Research title "The Use of Experimental Methods to Increase Student Learning Activity and Achievement in Natural Science Learning about light material and its Class V Ringinanom 1 Elementary School, Tempuran District, Magelang District". The aim of the study was to increase the activeness and learning achievement of students in learning Natural Sciences by using the experimental method in class V SDN Ringinanom1. The research method used is descriptive. The subjects of this study were 14 students. Observation results, data from observations listening to explanations in cycle 1 was 25.7% and cycle 2 to 27%, the activity of conducting experiments in cycle 1 was 13.6% and cycle 2 was 28%, the activity of communicating results in cycle 1 was 25% and cycle 2 becomes 29%, so the students' activeness in cycle 1 is 64.3% and cycle 2 becomes 84%, and the percentage of students who have achieved completeness criteria in cycle 1 is 57.1% and cycle 2 becomes 92.8% , average . Thus the use of experimental methods in science learning can improve the activeness and learning achievement of grade V students of SDN Ringinanom 1.

Keywords: *experimental method, science process skills.*

Background

The learning process in the educational environment is still not able to provide the results expected by students. Therefore the teacher is required to follow the development of Natural Sciences, especially those related to the subject matter at

astructure, strategies, curriculum and learning methods. This success is the responsibility of the teacher, because the teacher is directly involved in classroom learning.

The relationship with improving the quality of learning, these activities can be macro or micro level. At the macro level can be done in school by reviewing, reviewing, reflecting, and identifying problems that occur in learning. Teachers as class managers must be more creative in developing the media and make the most use of it so that they can optimize student learning activities to obtain better learning outcomes.

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Armed with honesty and awareness, researchers tried to identify the problems that occurred during the learning of Natural Sciences that had been carried out so far. In science learning in the classroom the teacher has used learning media well. however, many students do not understand the material taught especially in the Natural Science and Light subject matter. However, researchers believe that there are still many shortcomings in delivering material. So you can't

give results that are satisfying and far from expectations. This is evident from the 14 students, in grade 5 semester II, only 4 students or 28.6% had completed the KKM, while 10 students or 71.4% were still under the KKM. With the provision of KKM 75.

Based on the facts above, and through self-reflection and interviews with students and peers, several problems in learning were revealed, namely:

1. Student learning outcomes on subject matter are low.
2. Teachers in the use of learning methods are not appropriate.
3. Students are less active in taking lessons
4. The teacher does not use instructional media, except whiteboards and chalk.

The Nature of Learning Natural Science is a preparation for the future, in this case the future of the child's life determined by parents. Therefore, the school prepares them to live in the community that will come. Learning is a process of delivering knowledge, which is carried out by expressing knowledge to students (Oemar Hamalik, 2008: 25). When learning is seen as a process, learning is a series of teacher efforts or activities in order to make students learn. The process starts from planning the annual teaching program, the semester and the preparation of the teaching preparation (lesson plan) and the preparation of the deviceits completeness is in the form of props and evaluation tools (Hisham Zaini et al., 2004: 4).

Based on some of the above opinions, it is concluded that learning is a process and a series of efforts or activities of the teacher in order to make students learn, learning is also a preparation in the future and the school prepares them to live in the future community. Natural Science is a subject in elementary school which is intended so that students have organized knowledge, ideas and concepts about the natural surroundings, which are obtained from experience through a series of scientific processes including investigation, preparation and presentation of the ideas of the nature of science learning.

A teacher relates to his task of teaching who always wants to make his students more happy and interesting in the learning given. Because interesting learning will greatly determine how the learning process works. In order for this to be achieved, the teacher is always contemplating by reflecting on whether the learning provided by the students has been maximized. Classroom Action Research is an afterthought carried out by the author in order to improve his performance. In accordance with the opinion of Car and Kemmis (McNiff, J. 1991: 2).

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In general, the term science (science) is defined as science or science. The term "science" comes from scio, scire (Latin) which means to know. So, both science and science are etymologically meaningful

knowledge. In a narrow sense natural science (science) or science is a discipline that consists of physical siensces (physical sciences) and life sciences (biological sciences). The physical sciences include astronomy, chemistry, geology, mineralogy, meteorology and physics. Meanwhile, life sciences include anatomy, physiology, zoology, citology, embryology, microbiology.

IPA discusses natural phenomena that are arranged systematically based on the results of experiments and observations made by humans. James, 1997 (Samatowa, 2006: 1) defines Science as a series of concepts and conceptual schemes that relate to each other and which grow as a result of experimentation and observation, and are useful to observe and experiment further. Then Whitehead, 1999 (Samatowa, 2006: 1) states that Science is formed because of the meeting of two order of experience.

IPA is a special knowledge that is by observing, experimenting, inferring, composing theory and so on and connecting to one another in a different way (Abdullah, 1998: 18). IPA relates to how to systematically find out about nature, so that the IPA is not only a mastery of a systematic collection and the IPA is not only mastering a collection of knowledge in the form of facts, concepts or principles, but also a process of discovery (Sri Sulistyorini, 2007: 39).

According to Iskandar IPA is the study of natural events (Iskandar, 2001: 2). Natural Sciences is a subject in elementary school which is intended to make students have knowledge, ideas and concepts that are organized about the natural surroundings, which are obtained from experience through a series of scientific processes including investigation, preparation and presentation of ideas. In principle, studying science as a way of finding out and how to do or do and help students to understand the natural surroundings more deeply the nature of ipa learning (Ministry of National Education in Suyitno, 2002: 7).

Science Learning Objectives at Elementary School Natural Science Learning in Elementary School aims to make students:

1. Develop curiosity and a positive attitude towards science, technology and society.
2. Develop process skills to investigate the environment, solve problems and make decisions.
3. Develop knowledge and understanding of scientific concepts that will be useful and can be applied in everyday life.
4. Develop awareness about the role and importance of science in everyday life.
5. Transfer knowledge, skills and understanding to other teaching fields.
6. Participate in maintaining, maintaining and preserving the natural environment.

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Research Methodology

1. Research Time

The time of this research was carried out in the second semester of 2015/2016 school year starting from January to June 2016. The data collection by taking the cycle I and II actions was carried out in March 2016 because the material taken was in the second semester. The activities carried out are the preparation of instruments; data collection; data analysis; discussion / discussion; and compile an overall research report. For more details can be seen in the table as follows.

Execution time

a. Cycle I: March 19, 2016
b. Cycle II: March 26, 2016

2. Research Sites

This classroom action research was carried out in class V SD Negeri Ringinanom 1 having a address at Kiringan, Tempuran Subdistrict, Magelang District with the subject of class V students. The choice of the location of the study was due to the researchers teaching in the class, making it easier in conducting research and not leaving the main task as a teacher.

3. Research Subjects

The subjects studied were grade V students in the 2015/2016 school year of Ringinanom1 Public Elementary School with a total of 14 students consisting of 5 males and 9 females.

4. Data Sources

a. Students, namely as a primary data source related to learning outcomes obtained when assessing.
b. Peer friends, as a secondary source based on observations.

5. Data Analysis Techniques

Data analysis is done by scoring the values obtained by students, then searching for the mean by adding up all student scores divided by the number of students. While to find the average completeness is the number of students who get a score of 75.00 divided by the total number of students multiplied by 100%. Furthermore, each data is compared, both before the action, cycle I and II, so that the level of development and success can be known and the final step in data analysis is reflected on all data that has been obtained, both in cycle I and II.

Findings and Discussion

Based on the results of improvements in learning carried out in grade V SDN Ringinanom 1. From the two learning cycles of science, various data were found. The first data is about the activeness of students in the class. Of the 3 indicators of student activity, namely listening to explanations, conducting experiments and communicating results, obtained the following data.

1. The first cycle of activity increased to 64.3% from the initial condition of only 50%.

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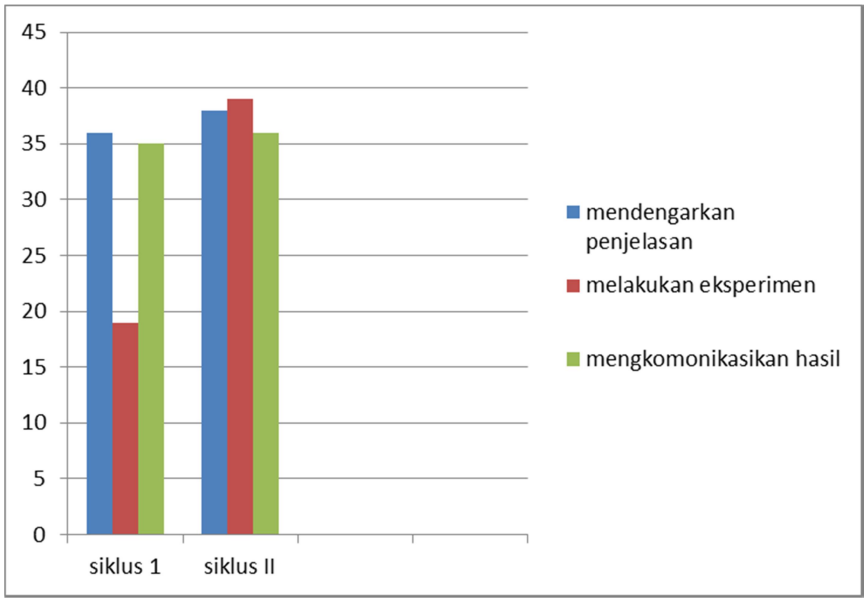
2. Cycle II activeness increased from the first cycle which was 64.3% to 84%.

Recaoitulation Tabel of Student Activity

No	Student Activity	The number of students	Cycle I		Cycle 2	
			The namber of results	Percentage	The namber of results	Percentage
1	Listening to Explanations	14	36	25,7%	38	27%
2	Conducting Experiments	14	19	13,6%	39	28%
3	Communicate results	14	35	25%	40	29%
Total			90	64,3%	117	84%



Recapitulation chart of student activity Cycle I and II

With the increasing activity of students in the classroom during learning, this has a positive effect on improving student learning outcomes. The data findings are in the form of values obtained at the end of learning in each cycle.

1. The first cycle of children who completed learning from 4 children to 8 children or 28.6% to 57.1% of 14 children
2. Cycle II students who completed learning from 8 children to 13 children or 57.1% to 92.8% of 14 children

While students who have not yet completed the learning are as follows:

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1. The first cycle of students who have not been completed is 6 children out of 14 children (42.9%).
2. Cycle II students who have not been completed as many as 1 child from 14 children (7.2%).

Below is a table recap the results of student learning achievement in science subjects from cycles I and II

No	Information on completeness	Cycle I		Cycle II	
		Total	Presentase	Total	Presentase
1.	Completed	8	57,1%	13	92,8%
2.	No Completed	6	42,9%	1	7,2%
3.	Average value		74,2		80

Recapitulation of student Learning achievenment cycles I and cycle II

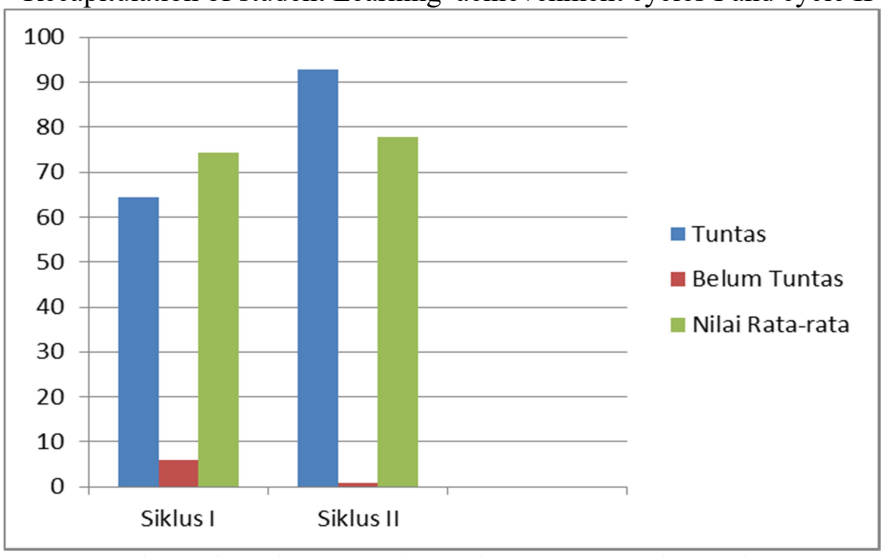

Chart of Student Learning Achievement Cycle I and II

From the acquisition of data the value of student learning achievement in the improvement of science learning the authors can conclude that the value obtained by students in each cycle has increased, the value of the cycle I to II The improvement of learning cycle I learning achievement of new students reached an average of 74.2 out of 14 students with the provision of KKM 75, thus the results of the first cycle are still below the KKM. In this cycle students who complete learning achievement are 8 students (57.1%), and those who have not completed 6 students (42.9%).

From the results of discussions with peers, known symptoms that have not occurred to students who have not been completed due to difficulties in understanding the concept of the properties of light. Students still play alone and talk to their friends. They have not been actively paying attention to learning.

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Improvement of cycle II science learning student achievement increases from cycle I average value of 74.2 to 80 means experiencing an increase in the average student score of 5.8. This increase is achieved because teachers use learning media in the learning process and the right method. The teacher tries to attract the attention of students starting to dare to ask questions and express opinions in the learning process, this results in increased student achievement.

Conclusion

Based on the results of research conducted, it was concluded that:

1. The application of the experimental method can improve student learning activeness which also affects the learning outcomes of grade V students of SD Negeri Ringinanom 1, semester II 2015/2016 academic year on science subjects subject matter "Light and Nature". Cycle I activeness increased to 64.3% from the initial condition which was only 50%. Cycle II activeness again increased to 84%. While the learning achievement in the first cycle shows the results of the average grade 74.2 with 57.1% classical completeness. This result increased in the second cycle the average value became 80 with 92.80% classical completeness.
2. In the learning process by using experimental methods students are given the opportunity to experience themselves or do it themselves, follow a process, observe an object, analyze, prove and draw conclusions about a particular object or process. This can occur because students are assisted by teaching aids, which can conclude abstract forms of structure, so that the facts become clearer, students play an active role and students are directed to find the concepts themselves taught.

References

Abdullah. 1998. *Natural Science Learning in elementary school*. Jakarta: Open University.

Adrian. 2004. *Teaching Method Based on Student Learning Typology*. http: //re_searchengine.com/art05-65html.

Ahmadi, Abu. 2003. *Education Science*. Rineka Cipta. Jakarta.

Asyari, Muslichah. 2006. *Application of Community Technology Science in Science Learning in Elementary Schools*. Jakarta: Ministry of National Education Director General of Higher Education Directorate of Manpower.

Choiril Azmiyawati, Wigati Hadi O, and Rohana Kusumawati. 2008. *IPA Satetemas Class 5*. Jakarta: national education department.

Ministry of National Education. 2005. *Guide to the Development of Competency-Based Learning Models*. Jakarta: Directorate of PPTK and KPT Director General of Higher Education.

ISBN 978-602-53231-2-6

Hamalik, Oemar. 1992. *Educational media*. Bandung: PT. Citra Adi Bakti

Hamalik, Oemar. 2007. *Curriculum Evaluation of the Systematic Approach*. Bandung: Al Madani Foundation Integrated.

Hamalik, Oemar. 2008. *Curriculum and Learning*. Jakarta: Sinar Grafika.

Heri Sulistyanto and Edi Wiyono. 2008. *Natural Sciences for SDMI Class V*. Jakarta: Bookkeeping Center of the national education department.

Hisham, Zaikni et al. 2004. *Active Learning Strategy*. Yogyakarta: CTSD.

Hudoyo, Herman. 2003. *Teaching and Learning Strategies*. Jakarta: Ministry of Education and Culture LPTK Development Project.

McNiff, J. 1991. *Classroom Action Research*. Jakarta: Center for Open University Publishers.

Rositawaty, S. and Aris Muharam. 2008. *Happy Learning Natural Sciences 5 For Elementary School / Madrasah Ibtidaiyah Class V*. Jakarta: Bookkeeping Center of the Department of National Education.

Samatowa, Usman. 2006. *How to teach science in elementary school*. Jakarta: Ministry of National Education.

Srini M. Iskandar. 2001. *Natural Sciences Education*. Bandung: CV. Maulana.

Sudjana, Nana. 2009. *Assessment of the Results of the Teaching and Learning Process*. Bandung: Teenagers Rosdakarya.